March 24, 1925. 1,531,107

O. C. LARSON

DUMB WAITER DOOR CONTROL

Filed March 15, 1924

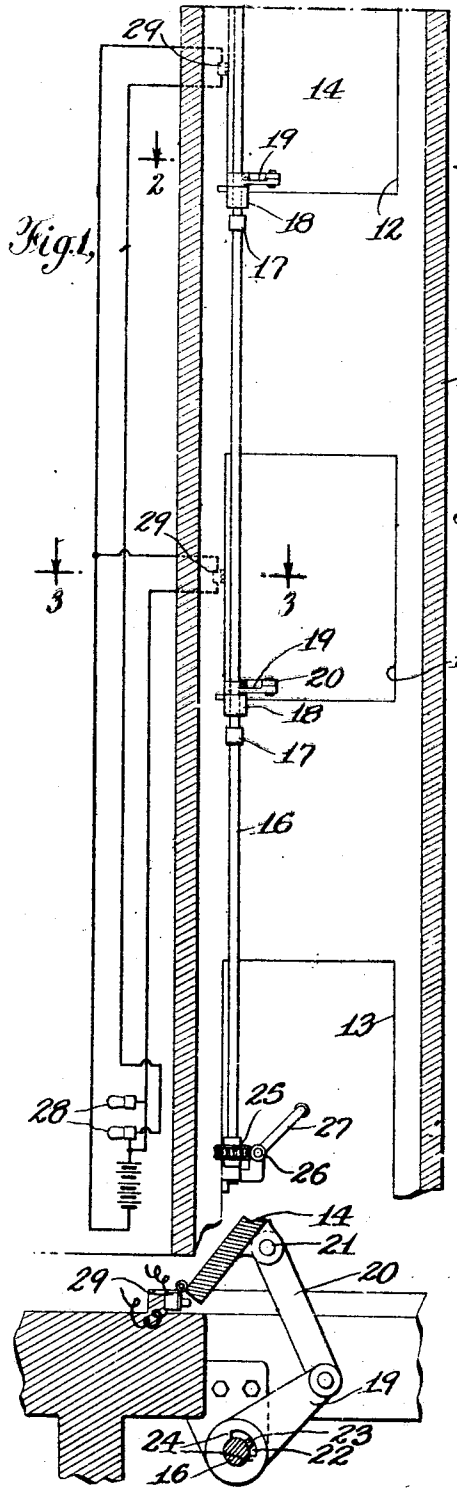


Fig. 1,

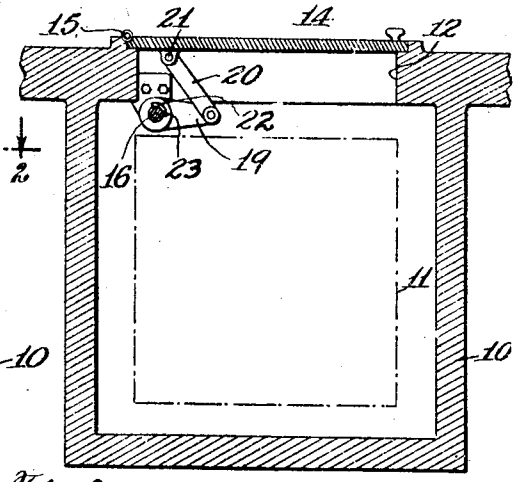


Fig. 2,

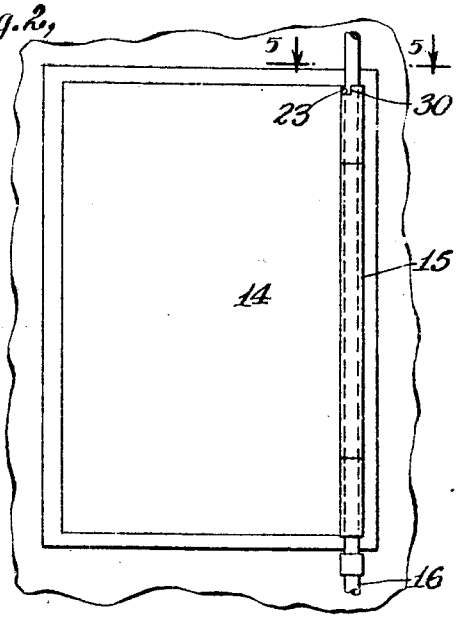


Fig. 4,

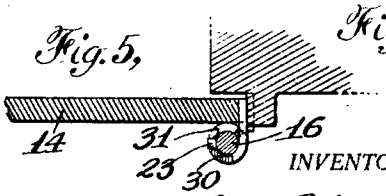


Fig. 5,

Fig. 3,

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UNITED STATES PATENT OFFICE.

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DUMB-WAITER-DOOR CONTROL.

Application filed March 15, 1924. Serial No. 699,398.

To all whom it may concern:

Be it known that I, OTTO C. LARSON, a citizen of the United States, and residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Dumb-Waiter-Door Controls, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to dumbwaiter constructions and particularly to the provision of means for controlling and actuating the doors controlling the entrance to dumbwaiter shafts; and the object of the invention is to provide an apparatus which will normally lock all of the doors of a predetermined shaft against opening, means being provided to release all of said doors to permit the manual opening thereof by the occupants of predetermined apartment; and further whereby all of the doors may be closed by the superintendent or janitor; a still further object being to provide an electric circuit for indicating to a superintendent or other party the positions assumed by the separate doors leading to a dumbwaiter shaft; and with these and other objects in view, the invention consists in a device of the class and for the purpose specified which is simple in construction, efficient in use and which is constructed as hereinafter described and claimed.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, in which the separate parts of my improvement are designated by suitable reference characters in each of the views, and in which:

Fig. 1 is a diagrammatic sectional view through a dumbwaiter shaft, showing my improved door control mechanism.

Fig. 2 is a section on the line 2—2 of Fig. 1.

Fig. 3 is a partial section on the line 3—3 of Fig. 1 and on an enlarged scale.

Fig. 4 is a detail view of a modified form of construction which I may employ; and,

Fig. 5 is a section on the line 5—5 of Fig. 4 and on an enlarged scale.

In the construction shown in Figs. 1 to 3 inclusive I have illustrated at 10 a dumbwaiter shaft and in dotted lines in Fig. 2 of the drawing, I have indicated at 11 a dumbwaiter mounted to move vertically in the shaft 10 in the usual or any desired manner. At 12 I have shown two door openings opening into the shaft 10 at predetermined floor levels, and at 13 the opening leading to the shaft from the cellar or lowest floor of the apartment.

Each of the door openings 12 are controlled by doors 14 hinged as shown at 15, and in carrying my invention into effect, I mount within the shaft 10 and in juxtaposition to the door openings 12 a vertical shaft 16 which will be preferably made in sections and coupled together in any desired manner as indicated at 17, and the shaft 16 is supported in position by a plurality of spaced brackets 18. Mounted on the shaft 16, preferably adjacent to one lower corner portion of the door openings 12 and also preferably adjacent to the hinged side of the doors 14 are arms 19 with which are pivotally connected links 20 pivoted to the inner face of the doors 14 as shown at 21. The arms 19 or the upper faces thereof, are provided with arc-shaped grooves or recesses 22 and the shaft 16 is provided with pins 23 adapted to enter the recesses 22 and to cooperate with shoulders 24 formed on the arms 19 by the recesses 22.

Mounted on the shaft 16 in juxtaposition to the door opening or aperture 13 is a worm gear 25 and a worm 26 is mounted in juxtaposition to and cooperates with the gear 25, the worm being rotated by a crank 27 or in any other desired manner, which operation will correspondingly rotate the shaft 16. I also preferably employ an electric signal circuit involving electric light bulbs 28 or other signal devices and switch devices 29 actuated by the doors 14, the switch devices 29 being in electrical circuit with the signal devices 28 whereby when the doors are closed, the circuit is broken to said signal devices and whereby when the doors 14 are in an open position, the signal devices 28 will designate this fact to the operator.

In apartment houses employing dumbwaiter shafts, it has been found to be a common practice for some tenants to dump garbage, rubbish and like material down the dumbwaiter shaft, thus causing unsanitary as well as dangerous conditions and many times causing fires in apartment houses by the ignition of paper or other rubbish accumulated at the base of a dumbwaiter shaft, but with my improvement all of the doors opening to a dumbwaiter shaft may be closed and retained in a closed position until the

locking means is released by a proper authorized party who controls the opening of all of the doors, at the base of the shaft, by operating the gear mechanism or any other mechanism which may be employed. It will be understood that all of the doors are normally closed, as shown in Figs. 1 and 2 of the drawing and the pins 23 engaging one of the shoulders 24 on each of the arms 19 as shown in Fig. 2 will retain said arms 19 against rotation, thus preventing the opening of the doors 14 as will be apparent. If the shaft 16 be rotated however through the gear mechanism or any other mechanism to release the pins 23 from the above named shoulders 24 as illustrated in Fig. 3 of the drawing, the doors 14 may be opened by the occupants of the several apartments on the different floors of the building in the operation of collecting garbage on the dumbwaiter 11 as is the common practice. After the garbage or other rubbish has been collected, in the event that the separate doors 14 have not been closed by the occupants or tenants, the superintendent or other party by the manipulation of the gears or other mechanism employed may rotate the shaft 16 to positively move all of the doors into a closed position, in which position said doors are all locked against opening until the locking means has been released. When all of the doors are closed, the signal devices 28 will designate this fact.

In Figs. 4 and 5 of the drawing, I have shown a modification in which the shaft 16 extends through the hinges 15 of the doors 14 or in other words, said shaft forms the hinge pin and in this form of constructions the pins 23 on the shaft 16 operate in recesses 30 in part of the hinges 15 or that part thereof which is on or integral with the doors 14. The pins 23 normally engage the shoulders 31 formed by the recesses 30 to retain the doors 14 in a closed position as shown in Figs. 4 and 5 of the drawing. By rotating the shaft 16 the doors may be released and opened in the manner described in connection with the construction shown in Figs. 1 to 3 inclusive.

With the form of construction shown in Figs. 4 and 5 of the drawing, it will be understood that the levers 19 and links 20 are omitted and in this way, the cost of my improvement is materially reduced and the installation simplified, the shaft 16 serving not only as means for locking and closing the doors but also as the usual hinge pin for the doors. It will be understood that while I have described my invention as applicable to dumbwaiter shafts and have also shown and described specific constructions for carrying my invention into effect, that I am not necessarily limited in these respects and various changes in and modifications of the construction herein shown and described may be made within the scope of the appended claims without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. A swinging door control and lock mechanism of the class described comprising a part cooperating with the door and adapted to normally hold the door in a closed position, and means for moving said part into position to permit said door to be swung into an open position.

2. A swinging door lock and operating mechanism of the class described comprising a shaft, means on said shaft cooperating with said door for normally holding the door in a closed position and to prevent the opening thereof, and means for rotating said shaft to move said first named means into an inoperative position to permit of the opening of said door.

3. A swinging door lock and operating mechanism of the class described comprising a shaft, means on said shaft cooperating with said door for normally holding the door in a closed position and to prevent the opening thereof, and means for rotating said shaft to move said first named means into an inoperative position to permit of the opening of said door and whereby said door may be moved into a closed and locked position.

4. A swinging door lock and operating mechanism of the class described comprising a shaft, means on said shaft cooperating with said door for normally holding the door in a closed position and to prevent the opening thereof, means for rotating said shaft to move said first named means into an inoperative position to permit of the opening of said door and whereby said door may be moved into a closed and locked position, and a signal system for designating the position of said door.

5. A swinging door control and lock mechanism of the class described comprising a shaft mounted in juxtaposition to the door to be controlled thereby, and cooperating means on said door and shaft for retaining the door in a closed position.

6. A swinging door control and lock mechanism of the class described comprising a shaft mounted in juxtaposition to the door to be controlled thereby, cooperating means on said door and shaft for retaining the door in a closed position, and means for operating said shaft and the means thereon to permit of the opening of said door.

7. An apparatus for controlling the doors of dumbwaiter shafts comprising means for normally holding all of the doors of a shaft in a closed and locked position, and means for moving all of the locking means

into inoperative position to permit of the opening of all of said doors.

8. An apparatus for controlling the doors of dumbwaiter shafts comprising means for normally holding all of the doors of a shaft in a closed and locked position, and means for moving all of the locking means into inoperative position to permit of the opening of all of said doors, and whereby the operation of said last named means will move all of said doors into a closed and locked position.

9. An apparatus for controlling the doors of dumbwaiter shafts comprising a shaft extending longitudinally of the dumbwaiter shaft and in juxtaposition to the doors thereof, means at the lower end of said shaft for rotating the same and for retaining said shaft in predetermined positions, a plurality of members on said shaft in juxtaposition to said doors, and means on said doors and cooperating with said members for locking the doors normally in a closed position.

10. An apparatus for controlling the doors of dumb-waiter shafts comprising a shaft extending longitudinally of the dumb-waiter shaft and in juxtaposition to the doors thereof, means at the lower end of said shaft for rotating the same and for retaining said shaft in predetermined positions, a plurality of members on said shaft in juxtaposition to said doors, means on said doors and cooperating with said members for locking the doors normally in a closed position, said last named means involving levers mounted on said shaft, and links pivoted to said levers and to said doors.

In testimony that I claim the foregoing as my invention I have signed my name this 12th day of March 1924.

OTTO C. LARSON.